Weekly Report for the week ending May 17, 2001

*** CALORIMETER (N. Johnson)

4.1.5.1 CAL Management

Participated in the GLAST LAT Quarterly Review held at GSFC.

France
CNES grant obtained for the GLAST french part Phase A.
Documentation management (Jean-Louis Ritou)
Planning up grade (Y.Acker)
Work on general specification documentation and testplan (P.Prat)
Meeting on the work for VM2 (ALL)

4.1.5.3 Performance Assurance

·Attended quarterly review at GSFC and discussed reliability, EEE parts, Stress analysis related to LAT and Calorimeter with GSFC code 300 and Code 562
·Released SSD Specification
·Discussed flex cable soldering methods with PIN Diodes.
·Prepared reliability and risk management plans
·Discussed PIN Diode flight specification, PIN Diode attainment methods and power supply specification with French partners at NRL.

4.1.5.4 CAL Design

VM2 Design
Optimization of design of the interface with the PCB.
Design concept for TEM attachment and handling of CAL modules.

4.1.5.5.2 CAL CsI Scintillation Crystal

VM2 CDE Integration : process description in preparation

Crystal performance & wrapping testing:
-Modification of 3 cell tooling to adapt it to CsI logs with AO dimension (VM1 dimensions) and fabrication of 2 new aluminum logs. Production of hot cells with 3M mirror film for Saclay optical test bench for performance evaluation (Polytechnic group)

-Cosmic bench working with three crystals
-Light yields measurement on crystals with and without air gap between crystal and PIN diode (& report). (Ph Bourgeois, Y.Piret, X. Gentit).
-Test of a new 3M film.
-Mechanical support mounting design of 10x20 diode on crystal in progress.

4.1.5.5.3 PIN Photodiode

10x20 Hamamatsu diodes received in France.

PIN Bonding (Collège de France and Polytechnique)
Work meeting with CETIM company. Cetim experts where looking for glues systems in around ten firms. They confirm the results we have got that Masterbond EP37-3FLF epoxy and DC 93-500 with primer seem well suited for our

application. Calculations made by CETIM confirm that 1mm thick hard epoxy cannot stand the stress induced by differential dilatation for that contact area.
New data on glue tests from Italian collaboration sent to NRL.

College de France purchased a vacuum thermal cycling device to test bonding (Didier Imbaut)

4.1.5.6 CAL Pre Electronics Module

VM2 Structure
Production of mechanical parts for composite structure tooling started.
No activity re. Facilities.

PEM / VM2 Integration & tests:
Meeting on the subject and process description in preparation

PEM integration :GSE
An acquisition program using Labview works properly and allows VME QDC (V792 - CAEN) testing. (Polytechnique)

4.1.5.7 CAL Analog Front End Electronics

The Analog Devices AD7475 analog to digital converter was latchup tested at the NRL laser radiation testing facility. Two devices were tested and both had a similar upper limit latchup threshold LET of 40 (Mev cm^2)/mg. The upper limit is due to the optical scattering caused by the higher density of metalization on this chip. This device is thus less radiation tolerant than the two Maxim ADCs which did not latchup under heavy ion testing at a LET of 80 (MeV cm^2)/mg.

A prototype kapton flex cable was received from manufacturing. This short cable has througholes to mount on the balloon flight PIN diodes. We will use these cables for testing the electrical connection concept.

4.1.E.3 CAL Balloon Flight

First inspection of the IVTE format muon data files shows apparently good CAL data. We've created an IDL reader for IVTE data (Grove).

4.1.5.4.5 CAL Software/Design Verification

Work continues on the CAL-HI trigger study. We are preparing a two-level trigger to provide the needed rejection of interacting CR protons. (Chekhtman and Grove).
We completed a new geometry description for MC simulations of the CAL carbon-cell mechanical design and submitted primary and derived constants to SLAC, along with some descriptive figures. See http://gamma.nrl.navy.mil/glast/CalSW/May01/geometry.pdf and http://gamma.nrl.navy.mil/glast/CalSW/May01/New_primary_constants.htm. (Chekhtman and Grove).

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